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Food Club Manual

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FOOD CLUB MANUAL

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First Year

"TO MAKE THE
BEST BETTER"

Extension Service
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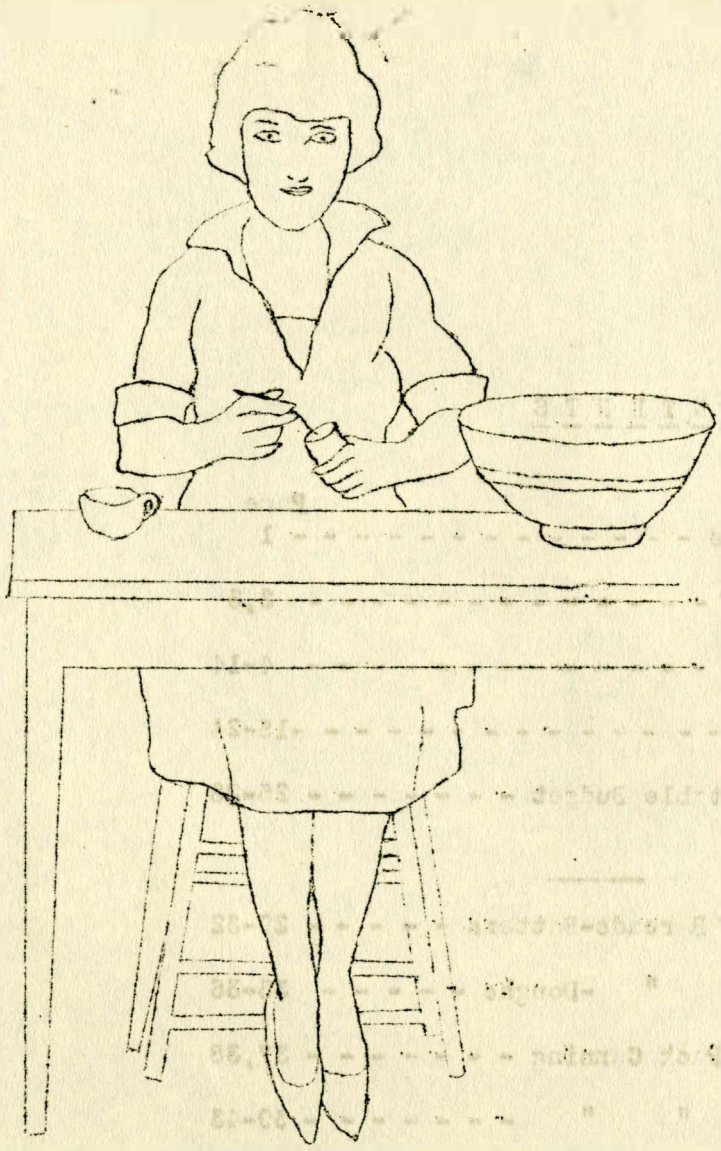
C O N T E N T S



Always neat and trim

1. Always keep clean when preparing food - wear wash dress.
2. The hair should be held in place with a net.
3. Wash the hands often.
4. Do not touch the face with the hands when working with food.

Preparation

1. Have everything on the table and ready, before you start to work. This includes the recipe, ingredients, uhensils for preparation and baking pans.
2. Measure the dry ingredients first and the liquid second to save time.
3. Where ever possible, combine the dry ingredients, then the liquids and last add the liquid to the dry ingredients.

Keep the table in order. The table must not have a mussy appearance. Have the oven ready when the ingredients have been combined. The baking pans should be greased as a part of the preparation before combining the ingredients.

Methods of Combining

To cream butter is to stir it until it is soft and cream like.

Cutting in fat means to add it to flour with a motion like food is cut with a e and fork. It can be done very rapidly.

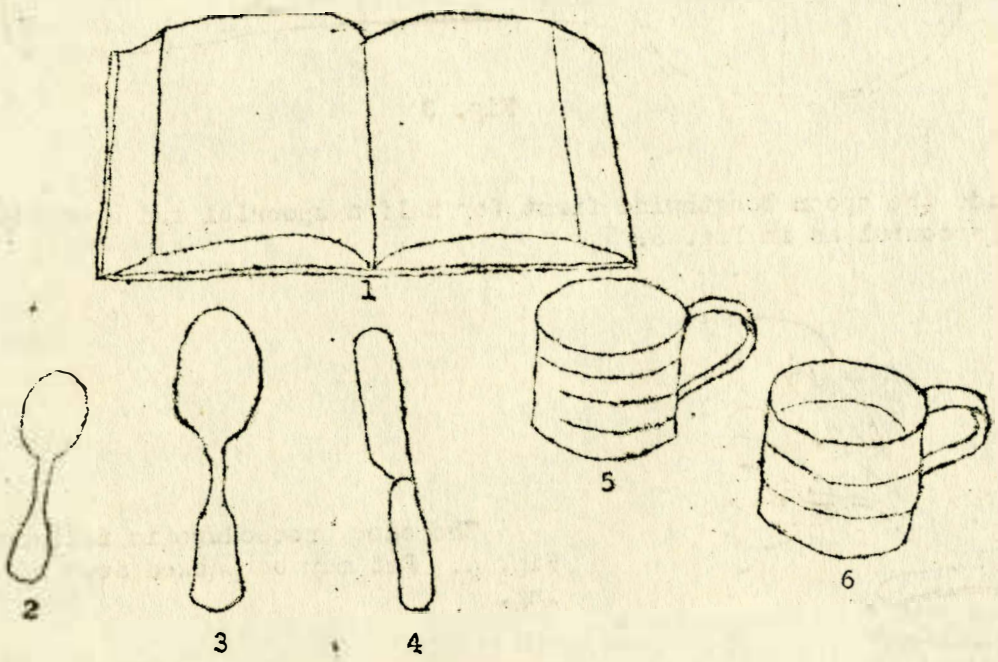
Sifting is a method used to remove hard particles and to lighten the mixture by incorporating air.

Beating is an over and over motion. It is used to make the mixture more smooth and to incorporate air.

Stirring is a round and round motion. It is used to mix liquid and dry ingredients.

Cutting and folding is an up and down motion. It is used to add beaten eggs to a mixture without loosing the air which has already been incorporated in the egg.

MEASUREMENTS



Utensils for Correct Measurements

Fig. 1

1. cook book for accurate recipes.
2. teaspoon
3. tablespoon
4. case knife
5. measuring cup for liquids.
6. " " " dry ingredients.

One of the first essentials in all baking is accurate measurements. Flour is always sifted before measuring. Do not pack when measuring. Baking powder and soda are sifted or stirred in the can before measuring.

Measurements are always taken level

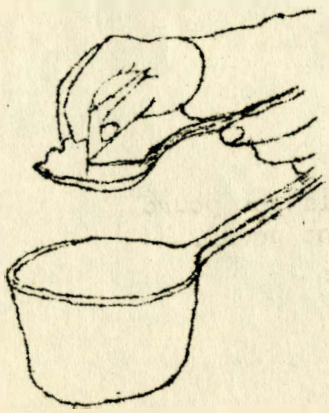


Fig. 2

To measure a teaspoon or tablespoon of dry ingredients dip the spoon into the material and level off with the straight edge of a knife as in Fig. 2.

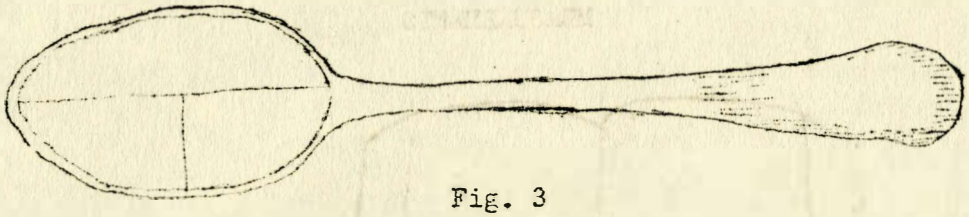


Fig. 3

Divide the spoon lengthwise first for half a spoorful and crosswise for a fourth spoonful as in Fig. 3.

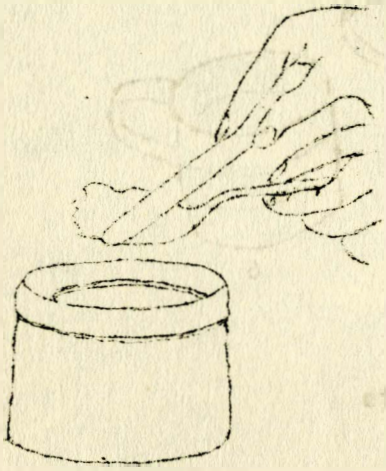


Fig. 4

The same proceedure is followed for fat. Fig. 4. Fat may be packed down before measuring.

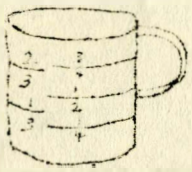


Fig. 5

Fig. 5, measuring cup showing the divisions into halves, fourths and thirds. It is easier to work if one measuring cup can be used for liquids and another for dry ingredients.

Abbreviations

ts for teaspoon
tb. " tablespoon
c " cup
2c of granulated sugar equals one pound
4c of sifted flour equals one pound.

QUICK BREADS

by

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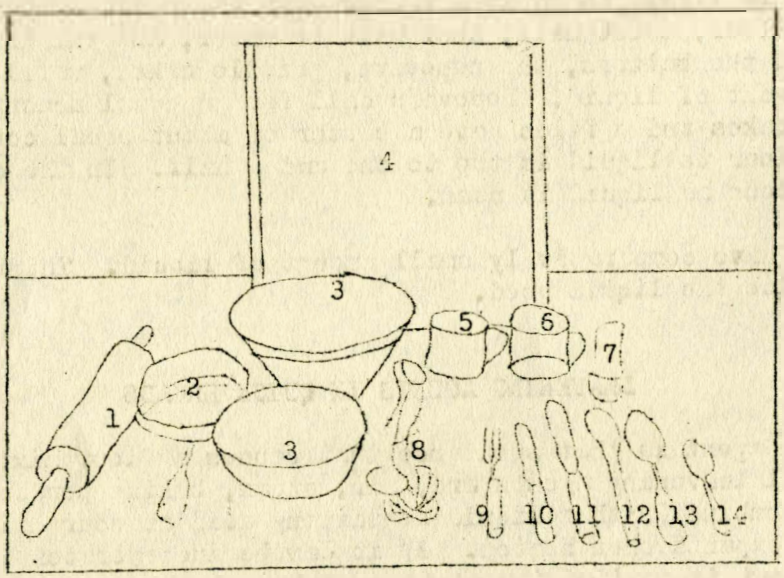
TYPES OF QUICK BREADS

There are two types of quick breads, batters and doughs. The batters are divided into pour batters and drop batters. The proportion of flour to liquid in pour batters is about equal, in drop batters two to one. All batters can be easily stirred with a spoon. The doughs are thicker mixtures. The proportion of flour to liquid is more than double. In all plain quick breads the same ingredients, flour, fat, leavening, salt are used. The difference is in the amount of each used, method of handling and baking.

PLACE IN THE DIET - QUICK BREADS

Quick breads are predominantly cereal products (carbohydrates) since the main ingredients if flour. Although fat, eggs and milk, increase their nutritive value not enough of anyone is used in a recipe to make the quick breads serve as a well balanced diet. No day's diet is complete which is made up almost entirely of cereals. One serving at least of the following food groups should be used every day to keep the body in health; (1) Milk, (2) Fruits; (3) Vegetables, other than potatoes; (4) Protein - meat, egg, fish, cheese; (5) cereals. Greens are especially good as the vegetable. They are needed in the diet. The rest of the foods served during the day will not make so much difference if these are included.



EQUIPMENT FOR MAKING QUICK BREADS

1 - rolling pin
2 - Sieve
3 - mixing bowls
4 - bread board
5 - measuring cup for liquids
6 - measuring cup for dry ingredients

7 - cutter
8 - dover egg beater
9 - fork
10 - case knife
11 - spatula
12 - wooden mixing spoon
13 - tablespoon
14 - teaspoon

FLOURS IN QUICK BREADS

The hard winter wheat flour is the best flour for the making of yeast bread while the soft flours are considered the best for the quick breads. The former contains more of the elastic material known as gluten and the latter more starch. The gluten must be present in the yeast breads to allow for the expansion of the dough necessary to make a good bread. The gluten can be easily separated out by making a stiff smooth dough ball, placing it in a cloth and washing out the starch under the faucet or in a pail of water. If the sticky mass is then placed in a hot oven it will be found to stretch to at least twice its size. When baked it is hollow, hard and greyish tan in color. This action takes place when the bread is baked but then the gluten particles are distributed in the starch and consequently small holes are made throughout the whole mass. The soft wheat flours, that is, the pastry flours, will yield very little gluten. While the two kinds of flour are on the market as bread and pastry flour, the tendency is to use one flour for most of the baking. The millers know this and as a result there are brands which are the result of the blending of two kinds of flour in the mill. These flours are not so high in gluten or starch content but that they will make both excellent quick breads and yeast breads.

When barley, rye or corn meal, flours are used in quick breads it is often necessary to modify a plain recipe because these flours contain cellulose material and the quality of the gluten is not as good for bread purposes. The moist content may also necessitate a slight change in the amount of liquid used in a recipe. Always sift white flour for quick breads.

LIQUID IN QUICK BREADS

The amount of liquid to be used varies with the moisture content of the flour, kind of flour, sweet milk, sour milk or water, and the kind of quick bread to be made. All the batters, the popovers, griddle cakes, waffles and muffins have a high percent of liquid. Popovers call for an equal measure of liquid and flour, griddle cakes and waffles have a batter of about equal consistency. The proportion of flour to liquid is two to one and a half. In the case of muffins twice as much flour as liquid is used.

The doughs have comparatively small amount of liquid. The flour by measure is more than twice the liquid used.

LEAVENING AGENTS IN QUICK BREADS

A leavening agent is that substance that causes a flour mixture to become light. The usual leavening agents are, air, steam, baking powder combined with a liquid, soda combined with a liquid containing acid as sour milk or molasses, and yeast. Air expands when heated. If it can be incorporated in a dough mass and held until heat is applied the mixture will be lightened by its expansion. This is done when eggs are beaten until they are light and fluffy and then fold into a mixture. Both air and steam lighten the batter in popovers.

An equal amount of flour and liquid is used. The result is a very thin batter. All the ingredients are put in a bowl and beaten with a dover egg beater to incorporate air. The expansion of this air and the turning of the liquid to steam in a hot oven makes the popover light and hollow.

To use baking powder understandingly we must remember that it bears a direct relationship to the amount of flour, the number of eggs and whether soda and sour milk or molasses are used in the same recipe. The rules are:

1. 2 tsp. of baking powder to 1 cup of flour with no eggs.
2. ½ tsp. of baking powder less for every egg used.
3. 1 tsp. to one cup of flour when soda and sour milk or molasses are used.

The gas which make the flour mixture light begins to be liberated when baking powder comes in contact with the liquid. Heat hastens the liberation of the gas, cold retards it. If the quick breads are to be light the gas must be liberated quickly before the dough sets. Therefore quick breads are baked in a hot oven. It is possible to make up some of the quick breads, biscuit for instance, in the morning, put them in an ice box and let them stand until night and then bake them. They will be found to have risen but slightly because of the cold, which retards the production of the gas, the leavening agent.

Baking powders are a mixture of baking soda, an acid and a starchy material. The acid may be cream of tartar, acid phosphate or alum.

It is possible to combine these separate ingredients at home but the finished product can be purchased so inexpensively it is a waste of time. Considerable care needs to be exercised also in combining them. The starch is put in the baking powder to absorb the moisture and thereby prevent any liberation of the gas and consequentydeterioration of the baking powder.

Baking Soda is alkaline. The liquid that is used to liberate the gas always contains an acid. There is a need to be careful that the right amount of both is used so that there will be enough gas to make the product light and only a neutral material, neither alkali of acid, left in the mixture. If there is too much soda the flavor may be bitter and the product discolored in spots. Eggs used in sour milk mixtures give a better flavored product and aid in making the mixture light. When eggs are not used it is necessary to find another leavening agent to use with the soda and sour milk. In this case one teaspoon of baking powder is used with every cup of flour. The amount of soda to neutralize the acid in one cup of sour milk or molasses is ½ to ¾ teaspoon.

The yeast plant by its growth produces the same gas that is liberated by the chemical reaction when using baking powder or baking soda namely carbon dioxide gas. Sometimes cream of tartar is used with sour milk and baking soda instead of using the prepared baking powder. In this case an extra amount of soda has to be used to neutralize the acid of cream of tartar. Use 5-8 teaspoon of cream of tartar and ½ teaspoon of soda to every cup of flour beside soda needed to neutralize the acid of sour milk or molasses.

EGGS IN QUICK BREADS

Eggs are used in quick breads to incorporate air, which on expansion lightens the mixture and to give a richer flavor. The whole egg is beaten until light or the yolks and whites are beaten separately, and then folded in.

A more delicate bread results when this last method is followed. Careless work in this one particular may ruin an otherwise excellent bread. Eggs even though unbeaten aid in making the product lighter than it would be without because the egg makes the walls surrounding the bubbles of air or gas tougher and thereby a greater percent of the gas is retained. Popovers and cream puffs are examples.

FAT IN QUICK BREADS

For the batters the fat is melted and stirred into the mixture because the batters have a high percent of liquid and the fat cannot be added easily any other way. For the doughs the fat should be cold and is cut into the flour before the liquid is added. The fingers may be used, but they soften the fat. The plain quick breads, that is, the fundamental recipes call for a small amount of fat. The breads which are very tender are made so by increasing the amount of fat. Shortcake is an example. This is a biscuit mixture with the fat increased two to three times.

SALT IN QUICK BREADS

One fourth teaspoon of salt to every cup of flour is the general rulesfor quick breads.

SUMMARY TABLE OF PLAIN RECIPES FOR QUICK BREADS

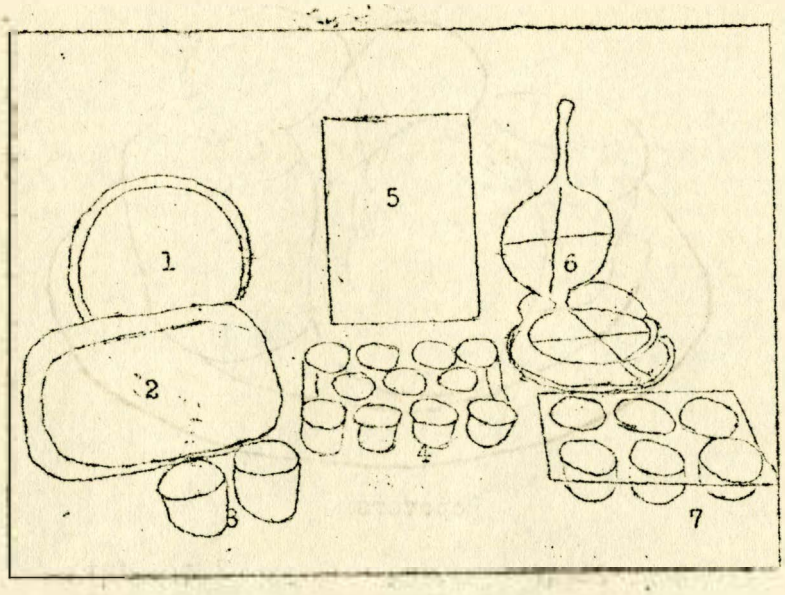
QUICK BREAD	FLOUR	LIQUID	LEAVENING AGENT	EGGS	FAT	SALT
Popovers	2 C.	2 C.	Air and steam	2	1 ts	½ ts.
Griddle Cakes	2 C.	1½ C. milk	3½ ts. B. P.	1	2 - 3 tb	½ ts.
Griddle Cakes	2 C.	2 C.(sour milk)	2 tsp. B. P. 1 tsp. soda	None	" "	½ ts.
Waffles	2 C.	1½ C. milk	3 tsp. B. P.	2	2 tb.	½ ts.
Muffins	2 C.	1 C. Milk	3½ tsp. B. P.	1	2 tb.	½ ts.
Drop Biscuit	2 C.	½ C. (Milk or Water)	4 tsp. B. P.	None	2 tb.	½ ts.
Biscuit	2 C.	2-3 C. "	4 tsp. B. P.	None	2 tb.	½ ts.

This summary table of the plain quick breads shows clearly the back ground for making recipes. Note the ingredients that are fairly constant and where the varintions appear.

METHOD OF MIXING QUICK BREADS

The general rule for the plain batters is to put all the ingredients in a bowl, mix thoroughly and quickly and bake immediately. The liquid needs to be added carefully bedause it is very easy to get in too much unless the recipe has been tested out with the particular brand of flour. It is easier to add more liquid if the batter is too thick than to add more flour because the amount of baking powder depends upon the flour and eggs (if used). The melted fat is added last.

The general rule for the doughs is to mix the dry ingredients, cut in the fat and add the liquid. Eggs may be beaten until light and folded in just before putting the bread in the oven.



UTENSILS FOR BAKING QUICK BREADS

1 - griddle
2 - baking pan
3 porcelain cups
4 - iron gem pans
5 - baking sheet
6 - waffle iron
7 - tin muffin pans

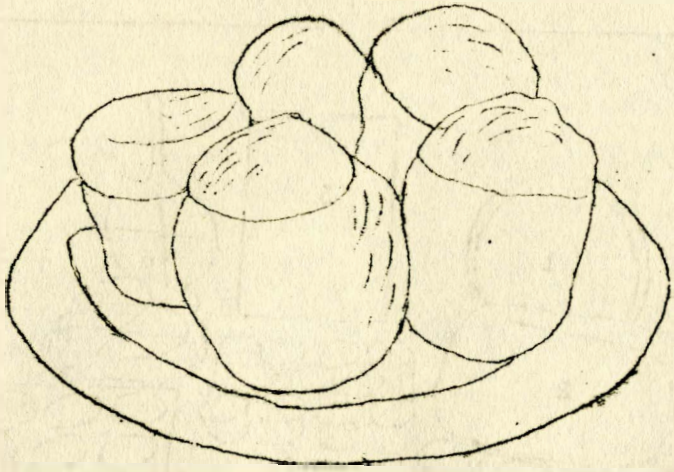
TEMPERATURE FOR BAKING QUICK BREADS

For all quick breads the baking temperature is high in order to get a quick action of the leavening agent before the mixture sets. Popovers are put into hot iron pans and then into a hot oven. Griddle cakes and waffles require that the griddle and waffle iron be sizzling hot and that a high oven heat be held throughout the baking. Muffins and biscuits must have a hot oven. The intensity of the heat is modified somewhat after the bread is risen in order to cook it through and brown it nicely. Small size quick breads, like muffins and biscuit, require a slightly lower temperature than loaf bread. A good test for a hot oven is that it give a golden brown to a piece of white paper in five minutes. The tests for sufficient baking of quick breads are that:

1. The bread be a golden brown in color.
2. The mixture shrink from the pan.
3. The crust spring back into place when pressed lightly.
4. The dough cling to skewer or fine knitting needle when inserted in mixture.

RECIPES

Pour Batters



Popovers

2 c. flour
2 c. liquid (milk or water
2 eggs
1 ts. fat
½ ts. salt

Put all the ingredients into a bowl. Beat with a dover egg beater. Put in hot iron pans. Bake in hot over twenty-five to thirty minutes. Popovers may be used as a bread, as a dessert if filled with whipped cream. Pieces of fruit may be dropped into each pan before baking.

Griddle Cakes - Sweet Milk

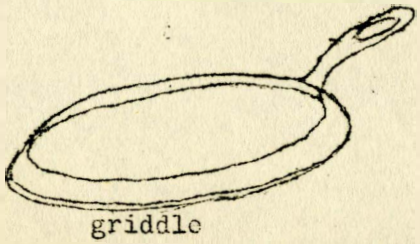
2 c. flour
1½ C. milk
3½ ts. B. P.
1 egg
2 tb. fat
½ ts. salt

Put all ingredients but fat in bowl and mix well. Add melted fat. Bake on hot griddle.

Griddle Cakes - Sour Milk

2 C. flour
2 C. sour milk
2 ts. B. P.
1 ts. soda
3 tb. fat
½ ts. salt

Sift dry ingredients into sour milk. Add melted fat. Bake on hot griddle.



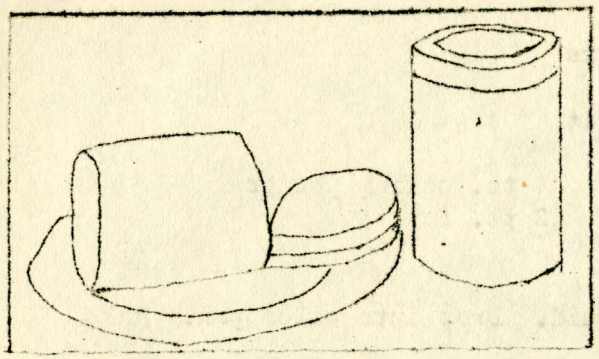
griddle

Griddle Cakes - corn meal

1½ C. flour
1 C. cornmeal
2 C. water
4 ts. B. P.
2 eggs
2 tb. fat
1 ts. salt
1-8 C. sugar

Cook the cornmeal and water five minutes. Add milk, dry ingredients and eggs well beaten. Stir well. Bake on hot griddle.

Boston Brown Bread



Boston Brown Bread with can for steaming

1 c. rye meal
1 c. corn meal
1 c. graham flour
2 c. sour milk
½ c. molasses
2 ts. baking soda
1 7-8 ts. cream of tarter
¾ ts. salt

Mix dry ingredients. Add the liquid. Mix thoroughly. Put in oiled molds and steam four hours. Dry in oven.

Waffles

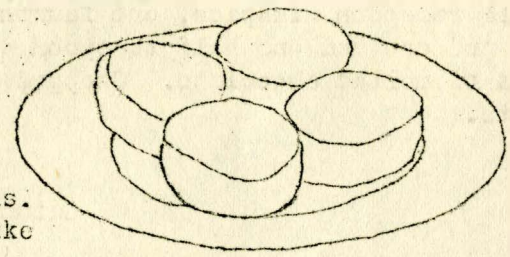
2 c. flour
1½ c. milk
3 ts. baking powder
2 eggs
2 tb. fat
½ ts. salt

Mix well all the ingredients but fat. Add melted fat last. Bake on hot iron. Waffle iron necessary for these.

Muffins

2 c. flour
1 c. milk
3½ ts. baking powder
1 egg
2 tb. fat
½ ts. salt

Treat the egg as liquid. Combine liquids. Sift in dry ingredients. Add melted fat. Bake in muffin pans twenty-five to thirty minutes.



graham muffins

Gingerbread

2 1-3 c. flour
1 c. molasses
1 c. sour milk
1 ts. soda
2 1-3 ts. baking powder
¼ c. butter
1 ts. salt
2 ts. ginger

Add sifted dry ingredients to the liquids (sour milk and molasses). Add the melted butter. Bake in hot oven.

Fritters

1 c. flour
½ c. milk
1½ ts. baking powder
1 egg
1 tb. fat
½ ts. salt

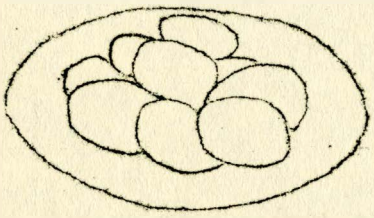
Mix the dry ingredients. Add the milk, well beaten yolk, melted fat. Fold in the well beaten whites. Drop by tablespoon fulls into hot fat. Fritters are excellent served as a dessert, either plain with whipped cream, fruit sauce, jelly, syrup or honey. Pieces of fruit, banana or apple can be cooked inside the fritters, vegetables can also be cooked inside the fritter, corn or peas. They are best served with butter,

Drop Batters

Drop Biscuit

2 C. flour
¾ C. milk or water
4 ts. baking powder
2 tb. fat
½ ts. salt

Mix dry ingredients. Cut in fat. Add liquid. Drop into oiled pan. Bake 10 to 15 minutes in hot oven.



cookies

Drop Cookies

1 c. sugar
½ c. melted butter
2 eggs
½ c. milk
2 C. flour
3 ts. baking powder
1 c. chopped raisins and nuts
1 ts. vanilla

Mix same as for plain muffins and drop from spoon on greased pans. For spiced cookies, omit vanilla and sift with the flour, one teaspoon cinnamon, one half teaspoon allspice, one fourth teaspoon cloves, or one half teaspoon ginger and one and one half teaspoon cinnamon. For chocolate cookies, add 3 squares of melted chocolate. Chopped peanuts may be used in place of raisins and nuts.

Oatmeal Cookies

1½ C. flour
½ C. cooked oatmeal
¼ C. sugar
¼ C. raisins
½ ts. soda (scant measure)
2 ts. baking powder
½ ts. cinnamon
3 tb. fat
½ c. molasses

1½ C. Heat the molasses and fat. Mix with all the other materials. Bake in muffin pans thirty minutes. This makes twelve cakes.

Drop Cookies

2½ C. flour
2 C. rolled oats
1 ts. allspice
1 ts. clove
1 ts. cinnamon
½ C. chopped nuts
½ c. chopped raisins
} flavor
1 c. milk
6 tsp. baking powder
3 eggs
½ c. fat
½ ts. salt
1 c. brown sugar

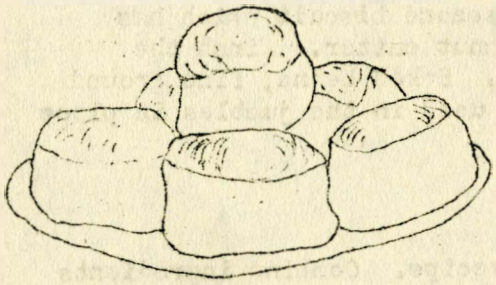
Sift together flour, baking powder, salt. Cream fat and sugar and add well beaten eggs. Add the sifted dry ingredients, alternating with the milk. Add the oats, nuts and raisins (slightly floured). Drop on baking sheet. Bake in hot oven.

Cream Puffs

1½ C. flour
1 c. hot water
5 eggs
½ c. butter

Boil the water and butter. Add flour carefully and mix thoroughly. Cook five minutes, cool slightly. Add the eggs, unbeaten, one at a time, when the mixture is cook. Beat mixture until smooth. Bake in hot oven twenty-five to thirty minutes. If used as dessert, fill with whipped cream or fruit whip. The latter is made by folding whipped cream into fruit pulp and sweetening to taste. Creamed meat or vegetable may be used for luncheon or supper in place of whipped

Baking Powder Biscuit



Baking Powder Biscuit

2 c. flour
2-3 c. milk or water
4 ts. baking powder
[illegible] fat
½ ts. salt

Mix dry ingredients, cut in fat. Add liquid lightly. Roll out into biscuit. Bake in hot oven twenty one to fifteen minutes.

Pocketbook Rolls

Roll baking powder biscuit dough lightly to one half inch thickness, cut in oblong pieces about three inches in length. Butter the top side and fold dough over. Let biscuit raise ten minutes before baking. Bake in hot oven twelve to fifteen minutes.

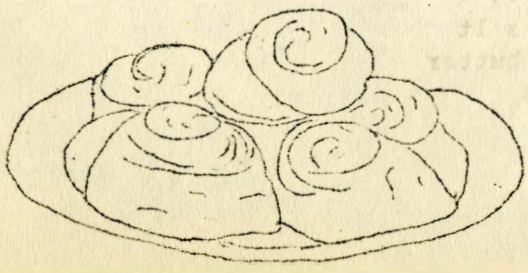
Apple Dumplings

The baking powder biscuit dough may be rolled into a thin sheet, and cut into pieces for apple dumplings. One half a large apple, peeled and quartered is enough fruit for one dumpling. Fold the dough over the fruit. Bake thirty minutes in not too hot an oven. Peaches or cherries are excellent used the same way. Serve with whipped cream and sugar or a fruit sauce.

Coffee Cake

Use a baking powder biscuit dough. Spread a thin layer of cream over the top. Stick small pieces of apples into the dough. Sprinkle with sugar and cinnamon. Bake in hot oven fifteen to twenty minutes. A layer of sliced apples may be used on top. This will make the dutch apple cake.

Cinnamon Rolls



Cinnamon Rolls

Add two extra tablespoons of fat to the biscuit recipe. Roll out dough to one fourth inch thickness. Spread over surface, one tablespoon butter, two tablespoons sugar, and half teaspoon cinnamon. Make sheet into a tight roll. Cut in slices one inch thick. Bake in hot oven fifteen to thirty minutes. Currants, raisins, nuts or pieces of apples may be used.

Short Cake

In the above recipe, double the amount of fat. Use butter for the fat. The dough may be baked in one large pan and then split open and the fruit put inside and on top or the dough may be rolled out, cut into biscuit and used as individual shortcakes. Any kind of fruit may be used.

Jam Jumbles

Double the fat in the Baking Powder Biscuit recipe. Combine ingredients as for biscuit. Roll the dough to one half inch thickness. Cut into biscuits. Place a heaping teaspoon of jell, jam or fine cut fruit onto one biscuit. Moisten the edge as for pie crust. Cover with a second biscuit which has a small circle cut in center with thimble or doughnut cutter. Pinch the edges together. Bake in hot oven fifteen minutes. Baked beans, fine ground well seasoned meat or left over vegetables may be used in the jumbles in place of the jam.

Fruit Rolls

Double the fat in the Baking Powder biscuit recipe. Combine ingredients as for biscuit. Roll the dough to one half inch thickness. Sprinkle with fine cut dates or dates with ground peanuts or walnuts. Jam, jell, fruits or fruit paste may be used in place of dates.

Fruit Paste

To half pound of figs or prunes, put twice through the food chopper, add two tablespoons of sugar, one half cup of water, one half teaspoon of salt. Heat until boiling hot in double boiler. Cool. This paste should keep some time without spoiling. The cooking figs that can be purchased in bulk are less expenisve than the package figs. The lighter colored figs generally make a more attractive fancy quick bread.

Egg Rolls

1 c. milk	1 ts. salt
4 c. flour	4 tb. butter
6 ts. B . P.	6 eggs

Use eggs (beaten) as liquid. Mix dry ingredients, cut in the fat. Add the liquid. Cut dough in oblong pieces, crease with back of floured knife. Brush with beaten egg. Sprinkle with sugar and spice. Bake in hot oven as for baking powder biscuit.

Cream Scones

1 c. cream	1 ts. salt
4 c. flour	8 tb. butter
6 ts. B. P.	4 eggs

Raisin Nut Bread

1¼ c. entire wheat flour
2 c. bread flour
3 ts. B. P.
1½ ts. salt
¾ c. sugar
1½ c. milk
1 egg
1 c. seedless raisins
no shortening

Date Nut Bread

2¼ c. entire wheat flour
3 ts. B. P.
1 ts. salt
2 tb. fat, melted
½ c. chopped nuts
¼ c. sugar
1 c. milk
1 egg
½ c. dates, fine cut and floured

Nut Bread No. 1

2¼ c. flour
3 ts. B. P.
1 ts. salt
¾ c. brown sugar
1 egg
½ c. seedless raisins
½ c. chopped nuts
3 tb. of fat melted

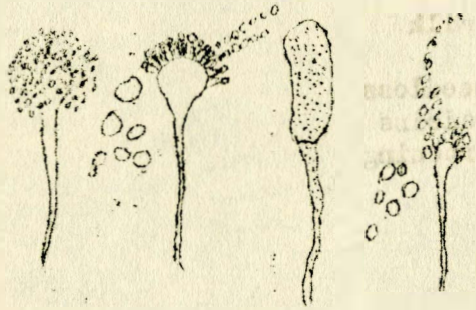
Nut Bread No. 2

4 c. flour
1 c. milk
6 ts. B. P.
1 tsp. salt
1 c. sugar
1 egg
1 c. chopped nut meats

For the four loaf breads listed, mix dry ingredients. Add milk, well beaten egg, melted fat, the nuts or fruit. Put in greased pan. Allow 15 minutes for bread to rise. Bake in hot oven forty-five minutes to one hour.

Tenth and Eleventh Program

Notice -- The Home work required for program ten and eleven is for the older girls 16 to 19 inclusive. The younger girls 10 to 15 inclusive are to can 30 quarts of products which must include tomatoes, greens, one other vegetable preferably peas or beans and three kinds of fruit as the work required for the year.

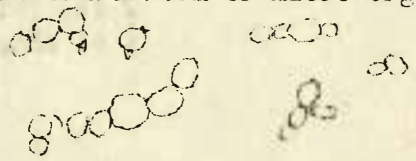


Molds

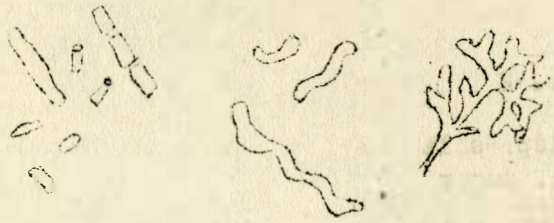
Microscopic

WHY FOODS SPOIL

There are minute bodies called molds, yeasts and bacteria floating about in the air, all the time. They settle on food and if left alone long enough and it is warm and moist they will grow very rapidly destroying the food by their growth and the substances they produce. The molds grow easily on cereal products, cheese, fruits. Their fine structure is easily seen. The yeasts set up a fermentation in the foods they attach and so change the character of the food completely. The molds and yeasts are not very resistent to heat and can be destroyed quite easily. The third form of micro organisms, the bacteria are the hardest to kill because they can form seed like bodies called spores when the condition for growth is not satisfactory. In this form they may lie dormant a long time waiting for the right conditions for their growth. The activity of the molds, yeasts and bacteria, is made impossible in canning by using only good products, by cleansing them, washing and blanching, and packing in clean sealed jars and heating for a long period of time. There must be as little delay as possible between the gathering of the product and the final sealing in the jars. Many of the fruits and vegetables deteriorate and ripen very fast after they are gathered due to the activity of the micro organisms. When left in heaps the interior of the mass is warm and damp and gives an excellent opportunity for rapid growth; consequently the difficulty of preparing the product so that it will keep indefinitely is increased.



Yeast plant as it appears under the microscope



Three kinds of bacteria as they appear under the microscope

PRECAUTIONS TO OBSERVE WITH CANNED PRODUCTS.

1. Can only the best products, since a high result is desired. Canning never makes the product better than the fresh.

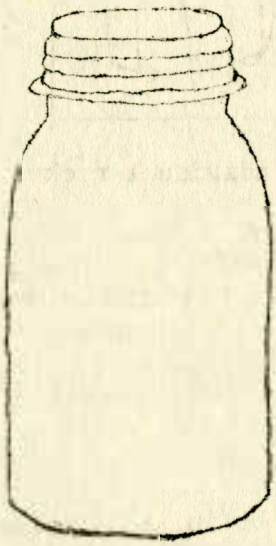
2. Examine every can of fruit or vegetables immediately upon opening. If there is a peculiar odor discard the contents.

3. Boil canned goods before tasting. The bacilus botulisms will not grow in human body but the poison which this micro organism produces is dangerous. Boiling makes the risk less.

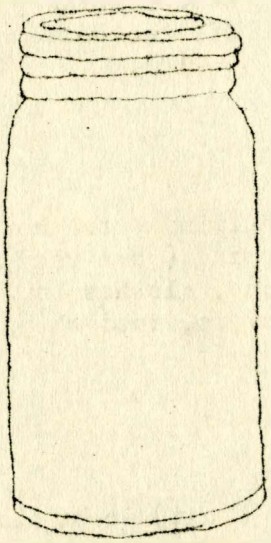
4. Bury all discarded canned goods. It is not fit for human consumption nor good for anumals.

Equipment

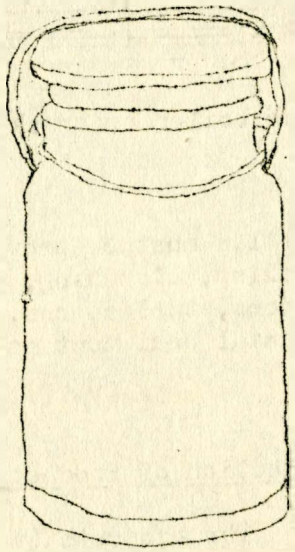
Before beginning canning everything should be ready. This means that the room where the work is to be carried on should be clean and cleared of unnecessary equipment. The housewife needs to have sufficient space to work carefully and quickly. There should be no flues.



Screw Top



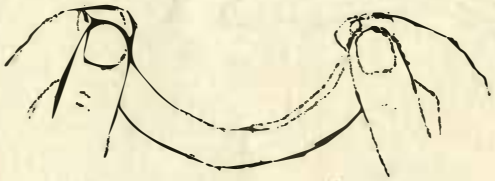
Vacuum Seal



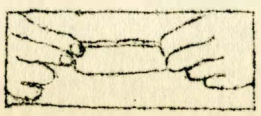
Glass Top

Three Types of Jars

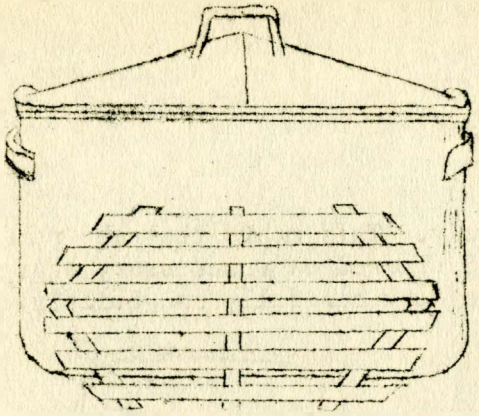
The jars are brought in, examined for imperfections that may prevent a perfect seal as cracks or nicks about the top, washed and put on the stove in cold water and heated to the boiling point for fifteen minutes to sterilize them thoroughly. Before the sterilizing the rubbers are put on the jars, water is put in each, the cover is fitted tightly in place, the jars inverted and tested for leaks. The automatic jar must have no cut or broken places in rubber preparation inside the cover, the screw top jar must have well cemented plate inside the cover and the glass top jar must have a bail that holds the cover tightly in place. Bending the bail into cover will tighten it and bending bail up will loosen it.



In selecting rubber rings, see that they will not crack when squeezed double.

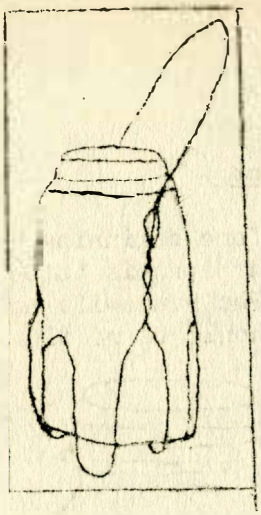


That they will stretch six inches without breaking and will come back into the former position when released. No rubber should be used a second year.



Wash boiler and rack

It will be necessary to have a boiler for a water bath or a steam pressure cooker for the processing. A large rack or individual jar racks are needed to keep jars off the bottom of the boiler.

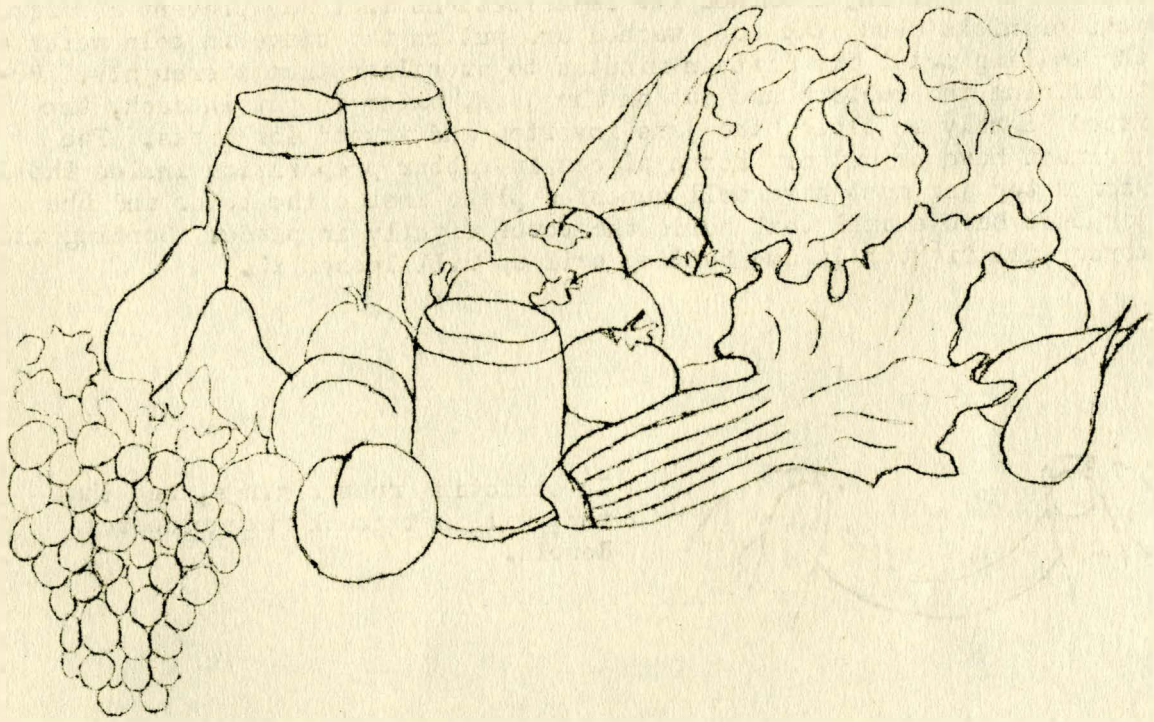


Individual rack

Kettles must be provided for supplying extra hot water, making syrup, sorting, washing, blanching, and cold dipping (when used). A sharp knife for paring, teaspoons, tablespoons, measuring cup, clothes for blanching and holders are needed. Special equipment as slicers, covers, food chopper, make the work easier at times.

Selection of Products

The products (vegetables or fruit) to be canned should be in first class condition. If they are ripe it may require too long a processing period to insure against spoilage and the flavor may not be as good in the finished product. The immature vegetables and fruits never give as high a standard of product because the flavor is not well developed and it is very easy to over cook them in the processing. Spotted and poorly shaped products never look well in the jars.



THE WATER BATH AS A MEANS OF PROCESSING

The hot water bath is not the most satisfactory method for the products which are hard to can, as peas, beans, asparagus, corn and spinach. The steam pressure cooker gives better results. The fruits and the vegetables that are easier to keep as carrots, beets and tomatoes, can be canned readily in the water bath.

1. Place wash boiler with tight fitting cover on stove. With sufficient water to cover the fruit jars one to two inches.

2. Have the water boiling when time to process jars of products.

3. Have an extra supply of hot water to use for filling up the boiler as the water evaporates.

4. Use either a wooden rack, a metal rack or individual jar holders for keeping the jars off the bottom of the boiler.

5. Lower the jars into the boiler as they are filled, topped, and ready to process.

6. Put on the boiler cover so that it fits as steam tight as possible.

7. Keep water boiling continuously during the processing period. Begin to count time when water begins to boils.

8. Remove the jars from the boiler at the end of the processing period. It may be necessary to partly dip the water out of the boiler to get at the jars.

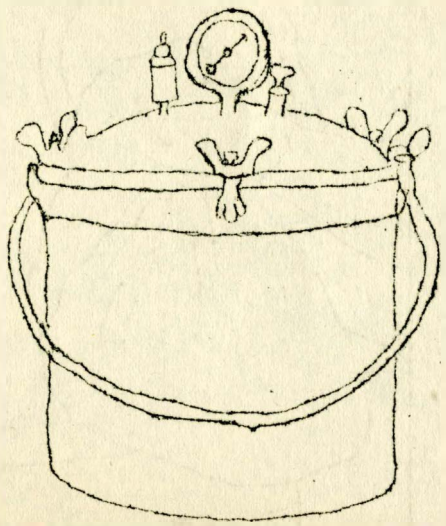
9. Seal jars immediately.

10. Invert to cool if possible.

11. Store in cool place.

STEAM PRESSURE COOKER

According to the latest government bulletin the best results are obtained in canning the more difficult products, peas, beans, corn, asparagus, when the steam pressure cooker is used, because a higher temperature can be secured than with the water bath.



Steam Pressure Cooker

The steam pressure cooker is made of solid aluminum cast in one piece. It has a steam tight cover which is held in place by small screw clamps. A metal rack is used in the bottom of the cooker to hold the glass jars off the bottom of the cooker. The ten quart capacity cooker will hold three one quart jars and the twelve quart capacity cooker four one quart jars or two one quart and one two quart jars. Larger cookers may be purchased. The twelve quart is probably the right size for family of five. There is a guage in the cover of the cooker which indicates the temperature and pounds pressure under which the processing is being done. A safety valve which blows off at the highest pounds pressure and an exhaust which allows for the cooking down of the cooker when desired is also provided in the cover of the cooker.

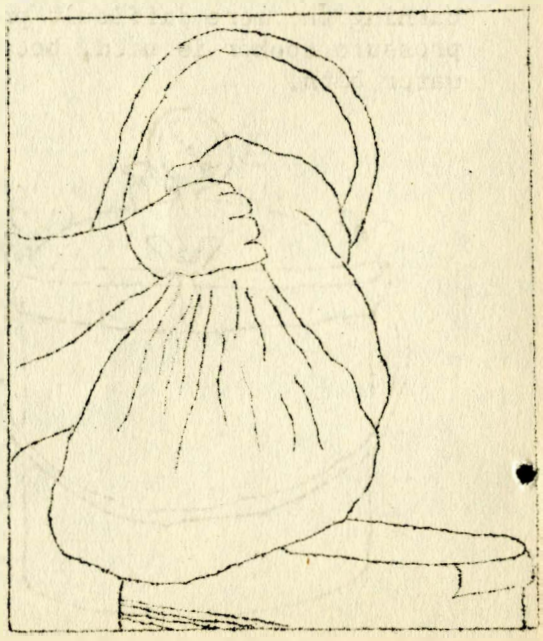
HOW TO USE THE STEAM PRESSURE COOKER FOR CANNING

1. Place the rack in the bottom of the cooker.
2. Add water to the top of rack but do not cover.
3. Place filled jars (peas, beans, corn, asparagus, greens) as they are ready for processing onto the rack in the cooker.
4. Keep cover in position but not fastened until cooker is filled with jars.
5. Screw cover into position, fastening the opposite clamps until the cover is tight.
6. Close the safety valve.
7. See that the exhaust is open to allow the escape of the cold air until the steam begins to appear.
8. Close exhaust.
9. Begin to count time when the hand on the dial indicates the desired temperature and pressure.
10. Hold a uniform pressure until the end of the processing period. When using an oil stove it is necessary to turn the blaze down. When using the cook stove, the steam pressure cooker can be moved to the back or one side and still maintain the required pressure. The main point is to keep the pressure regular. Changes in pressure from 10 pounds to 15 pounds and back will effect the pressure on the inside of the jars so that the juice may be drawn out.
11. Remove the steam pressure cooker from the fire when the processing period is finished.
12. Allow the cooker to stand in a cool place, unopened, until the hand on the dial indicates zero. It may be necessary to wait three or four minutes after the cooker registers zero before opening the cooker. Don't wait too long.
13. Open the exhaust gradually until all of steam escapes.
14. Unscrew all clamps. Remove cover of cooker.
15. Seal jars immediately. Invert jars to cool.
16. Store in cool place.

STEPS IN COLD PACK CANNING

Blanching

1. Place the product (In cloth bag or colander) in steam or boiling water a few minutes before before packing.
2. Follow time table to determine length of time, Since this varies with the kind of fruit or vegetable and the condition of the product.



Product being lowered into boiling water for blanching.

3. Blanching cleanses the product and shrinks it. A better pack is the result.

4. Count time from the instant the product is imersed in the boiling water. Keep kettle covered.

5. Allow four quarts of water to one quart of product in blanching so that all of the product is heated equally.

6. Blanch each time only the amount that can be packed quickly.

7. Too long a blanching should be guarded against since the product may be over-cooked.

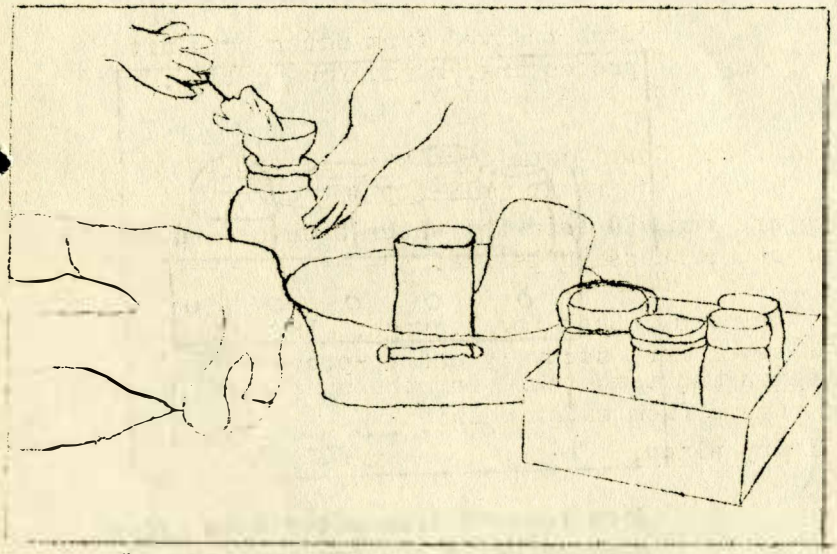
Cold Dipping

1. Cold dipping is best omitted for those vegetables (peas, string beans, asparagus corn, greens) which are hard to can unless the product is re-heated.

2. Cold dipping helps to remove starch particles and cleanse product.

3. Packing the jars immediately from the blanch water is generally the best method because the product in the jar will be hot to the center and consequently the sterilizing starts quicker than with cold dipping products.

Packing

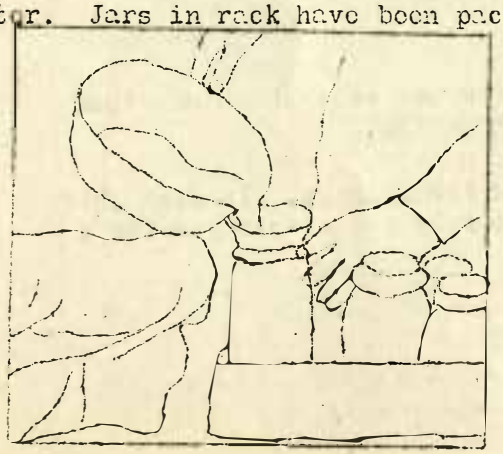


Packing blanched products into jars - jars in dish pan have been cleaned and inverted in hot water. Jars in rack have been packed for processing.

1. Have no delay between the processes in canning. Handle only a small amount at a time to prevent delay and possible spoilage later on.

2. Pack somewhat loosely otherwise it takes too long a time for the heat to penetrate the center of jar.

3. Add to vegetable, the salt, one teaspoon to a quart jar. Fill the jar within $\frac{1}{2}$ inch of top with boiling water.



Adding hot liquid to jars after packing.

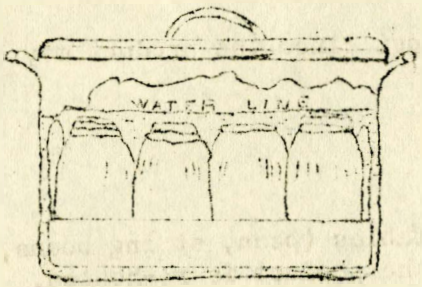
4. Add boiling syrup, of consistency desired to each jar of fruit.

5. Remove air bubbles by running knife carefully into the product in the jars.

6. Place the rubber ring in position on jar.

7. Put the cover in position on the jar. For the screw top tighten the cover about three fourths, for the glass top put one wire bale over the cover and leave the other up, for the automatic seal place clamp over top.

Processing

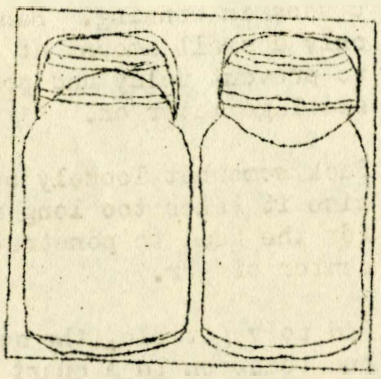


Processing Jars
Water line above jar tops

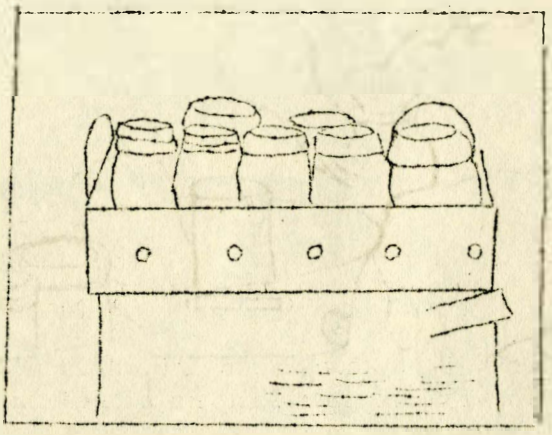
1. Lower the jar as soon as it is packed and top is in position, immediately into the boiling water bath or place it in steam pressure cooker. In wash boiler must be covered one to two inches with water.

2. Count time from the instant the water bdgins to boil for the water bath and when the desired pressure is indicated on the dial for the steam pressure cooker.

3. Process for the time indicated on the time table for the particular poduct and method being used. Then remove from water bath.



To show the cover and bail up for processing at left and bail down at right for sealing.



Jars removed from water bath after processing, ready for sealing.

4. Seal the jars as soon as they are removed from the water bath or steam pressure cooker at the end of the processing period.

5. When seal is complete invert the jars. Look for leakage. In case there is not a complete seal fasten cover more securely and re-process for a short period - ten to thirty minutes.

6. Store canned products in cool dry place.

(Taken from Farmers' Bulletin No. 1211)

TIME REQUIRED FOR BLANCHING AND PROCESSING FRUITS AND VEGETABLES.

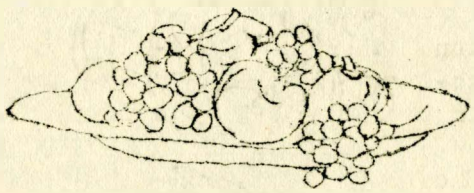
Product	Glass jar	Tin can	Blanch or cook	Water bath at 212° F.	Steam Pressure 5 pounds 228° F	Steam Pressure 10 pounds 240° F	Steam Pressure 15 pounds 250° F
					Min.	Min.	Min.
Apples - whole	Pint or quart	#2, 2½ or 3		10 min.			
Packed hot	"	"					
Apple sauce	"	"		10-20 min.	10		
Apricots	"	"	1-2 min.	30 min.	10		
Asparagus	Pint	#2	4 min.			30-40	
Beans, string	Pint or quart	"	3-5 min. in water or 5-10 in steam			40-50	
Beans, Lima	Pint	"	"			45-60	
Beets	Pint or quart	"	5-10 min.	90 min.	60	40	
Berries, etc.	"	#2, 2½ or 3		10-20 min	10		
Blackberries	"	"		"	10		
Blueberries	"	"		"	10		
Carrots	"	#2	3-5 min.	90 min.	60	40	
Cherries	"	"	¼ min.	25 min.	10		
Corn, sweet # (Maryland style)	Pint	"	1 to 5 min.			90	60-90
Currants	Pint or quart	#2, 2½ or 3		10 to 20 min.	10		
Gooseberries	"	"		10-20 min.	10		
Gooseberries - sauce (packed hot)	"	"		10 min.	5		
Grapes	"	"		10-20 min.	10		
Greens	"	#2	4 min. (15 if in steam)	"		90	35
Loganberries	"	#2, 2½ or 3		"	10		
Peaches	"	"	1 min.	20-30 min.	10		
Pears	"	"	4-8 min. in sirup	"	10		
Peas	Pint	#2	3-8 min. water or steam			40-50	
Peppers, pimentoes		#1 or 2	6-8 min. in oven	30 min.			
Pineapple	Quart	#2-3		"	10		
Plums	Pint or quart	#2, 2½ or 3		20-30 min.	12		
Pumpkin	"	#2	10-15 min. in steam	120-300 min.		40-60	

In pint jars only, when processing glass jars in water bath.

Product	Glass jar	Tin can	Blanch or cook	Water bath at 212° F	Steam Pressure 5 lbs. 228° F	10 lbs. 240° F	15 lbs. 250° F
					Min.	Min.	Min.
Raspberries	Pint or quart	No. 2	10-15 min. in steam	10-20 min. 120-300 min.	10		
Rhubarb	"	"					
Spinach	"	"	4 min. in water; 15 in steam	20-30 min.	10-15	90	35
Squash, winter	"	"	10-15 min. in steam	120-300 min.		40-60	
Strawberries	Pint or quart	No. 2, 2½ or 3		10-30 min.	10		
Tomatoes	"	"	1-1½ min.	25-30 min.	15	10	
Vegetable mixture (tomato and corn as specified for canning in each case.	"	"					30
Vegetable soup mixture, as specified for canning in each case	"	"				40	

Asparagus, lima beans, string beans, corn, greens, peas and spinach are processed three hours in the hot water bath. The steam pressure cooker gives the best results in processing these products.

FRUITS



Fruits are generally canned in syrup although they may be canned without. For a thin syrup one cup of sugar to four of water is used, for the very sweet fruits; for a medium syrup five eights of a cup of sugar to one of water, for the less sweet fruits; for the thick syrup onn cup of sugar to one of water is used for the very sour fruits.

1. Prepare the syrup for the fruit.

2. Blandh if necessary. The berries are never blanched. The other fruits a shorter period of time generally than the vegetables. The longer period of blanching is used to loosen the skin as in peaches, tomatoes, etc.

3. Fill the jars with fruit in neat loose pack. Too tight a pack requires too long processing.

4. Pour over the fruit the boiling syrup.

5. Place rubber rings and tops in position as for vegetables.

6. Process for theerequired length of time. A shorter time is required for fruits thsn vegetables because of their acid content.

7. Seal jars immediately when brought from the processor.

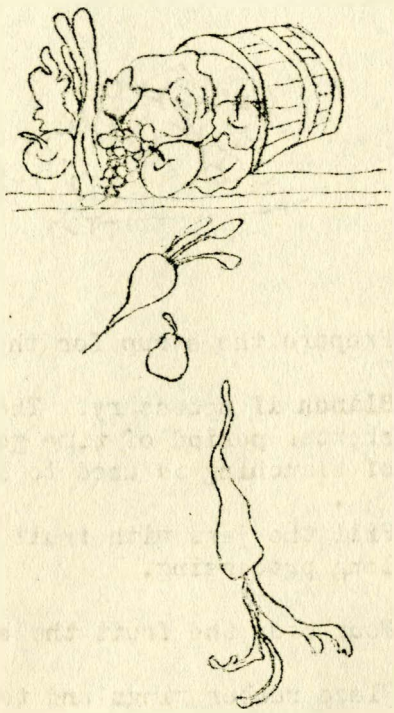
8. Invert Jars

9. Store in cool, dry place.

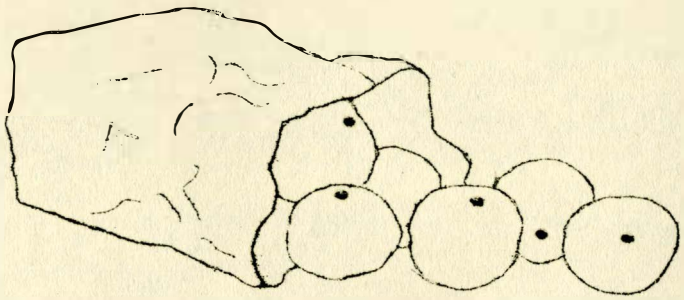
THE FRUIT AND VEGETABLE BUDGET
First Year - Eleventh Program

Notice -- The home work required for program ten and eleven is for the older girls 16 to 19 inclusive. The younger girls 10 to 15 inclusive are to can 20 quarts of products which must include tomatoes, greens, one other vegetable preferably peas or beans and three kinds of fruit as the work required for the year.

Why Can Fruits and Vegetables?



There are a number of reasons why every girl should be interested in canning. There are many garden products, both fruit and vegetables that will go to waste unless some method of preservation is used. Canning is one of the best. It is impossible to have fresh fruits and vegetables the year round in the country communities, because of the short growing season and the cost of shipping. The home maker must therefore use the few fresh fruits and vegetables she can raise and can afford to buy and then to substitute with the dried and stored fruits and vegetables. But why be so insistent that the fruits and vegetables are necessary in the diet? Scientists who have made a study of the body needs in definite tests with animals and people, have found that the body must have protein food for repair and growth of tissue, carbohydrates and fat foods for heat and energy, vitamins for health and growth, mineral substances for repair and growth of bone tissue and body regulation, roughage for body regulation, water is also needed. All the foods that you are familiar with can be placed in one or more of these groups. In a well balanced diet, all of these groups should be represented every day. Investigation has shown that the American diet is one-sided. That too much meat, (protein foods) and cereals (carbohydrates foods) are used and that a comparatively small amount of fruits and vegetables are used. The fruits and vegetables are one of the best sources of the minerals (calcium, phosporous and iron) of vitamins and of roughage. They also furnish some carbohydrate food in the form of starch and sugar. Their water content is high.



Oranges are excellent because of their vitamin content. Tomatoes will give you the same, but are cheap

Have a Plan

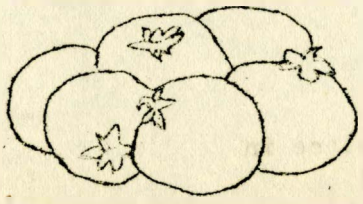
If the homemaker is going to get the best results she must first know why she needs the fruits and vegetables the year round (that has already been discussed) and second a plan by which to secure them. The woman who is going to make a dress knows the amount of material needed before she goes to the store to buy. She may make changes later but she does have a plan. The same thing holds true for home canning. Have a plan before you start. You say, "We can all we can raise or buy and never have enough". But if you knew in the first place how much you actually needed to feed your family to keep them in health would you not be more likely to get enough than if you went at it in a haphazzard way? The plan means that you figure out ahead of time the amount of canned, dried, stored and fresh fruits and vegetables needed for your family for a year and that you plant your garden so that you will have enough to can. If it has been impossible to raise a good garden in your part of the state you need to begin earlier with your plan and consult your county agent or write the State Extension Service at Brookings, South Dakota for help so that you can raise an adequate garden.

carrots make good food

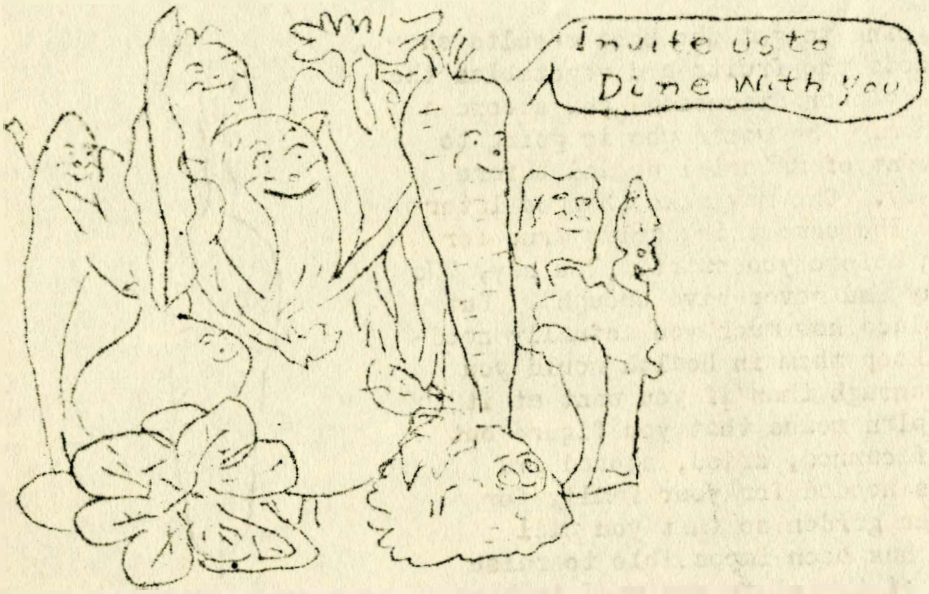
Use String Beans

The Fruit and Vegetable Budget

What is the plan, the fruit and vegetable budget? Vegetables other than potatoes, should be served once a day, better twice. Greens should be served twice a week. The same holds true for oranges or tomatoes, because of the necessary vitamin content. Tomatoes are one of the canned vegetables in which the vitamins seem to be less effected by the heat. Raw fruits and vegetables should be used whenever possible - apples are excellent eaten raw. Carrots, cabbage can be served in salads fresh the year round. With these specific suggestions in mind it is possible to substitute one vegetable or fruit for another to suit the family tastes. Suppose you allow one half cup canned vegetables or fruit to a serving. For canned tomatoes served four times a week for nine months, it will mean 36 x 2 cups or 72 cups equals 18 quarts of tomatoes for one individual for 9 months. If there are six in the family you will need 6 x 18 or 108 quarts of tomatoes to serve your family tomatoes four times a week for 9 months. Follow this same plan of estimating for the whole budget, canned, dried, fresh and stored. The accompanying table will aid you.



Tomatoes four times a week! Fresh or Canned

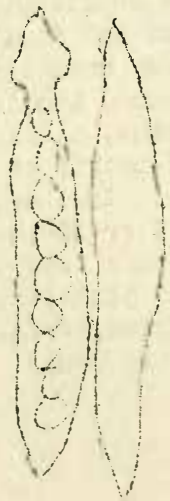


The Vegetable Family

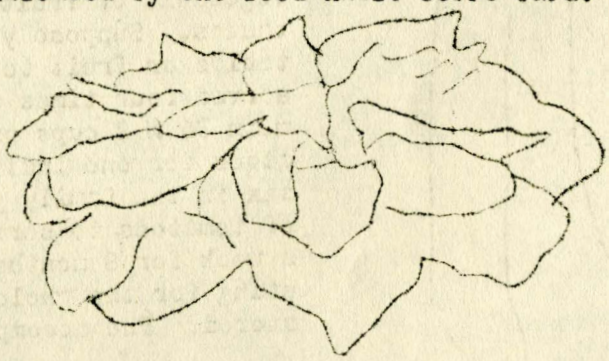
The budget allows for the following:

Tomatoes about four servings a week
Vegetables about fourteen servings a week
    Leafy vegetables canned or stored nine servings.
    Other vegetables canned or stored nine servings.
Fruits about ten servings a week.
    Fresh fruits about four servings.
    Canned fruits about four servings.
    Dried fruits about two servings.

This budget takes care of the fruit and vegetable requirements as indicated by the food habit score card.



Give peas a place in the diet



Don't forget Spinach

SUGGESTED FRUIT AND VEGETABLE BUDGET FOR ONE PERSON
September 1st to June 1st
by
Mary A. Delve
Extension Specialist in Foods and Nutrition

(Multiply thses quantities by the number in the family and you have your own family budget.)

NAME OF FOOD	QUANTITY PER WEEK	DIVISIONS IN SERVING PER WEEK		QUANTITY FOR Sept. 1-June 1	FILL IN YOUR FAMILY BUDGET
Tomatoes	1 lb.		4	29 lbs or 20 qt	
Spinach Chard Beet Greens Other Greens	½ lb.	2		20 lbs or 10 qt	
Cabbage Celery Lettuce Onions	1½ lb	4	9	45 lbs.	
Cauliflower Asparagus String Beans	1 lb.	3		19 lbs or 10 qt	
Peas Squash Corn	½ lb.				
Beets Carrots Kol Rabi Rutabagas	3/4 lb		5	45 lbs.	
Parsnips Salsify Turnips					
Oranges Grape Fruit Apples Bananas	1 lb.	3	4	39 lbs.	
Peaches Cherries Plums Strawberries Raspberries Other canned fruit	1 lb.		4	39 lbs or 20 qt	
Prunes Raisins Dates, etc.	1/8 lb		2	5 lb	

One pint of canned fruit or vegetables weighs about one pound